CLAIMS

1. A process for producing a refuse derived solid fuel (RDSF) and feeding the said fuel to a combustion plant, which comprises:
   - providing a first component consisting of a dry fraction of solid urban waste (MSW) in a shredded form,
   - providing at least one second component in a shredded form selected from an elastomeric material and a thermoplastic material, or mixtures thereof,
   - separately metering and feeding the said first component and the said at least one second component onto a continuous conveyor in such a way so as to form overlapping layers of the said components,
   - discharging the said components so assembled into at least one temporary accumulation container so as to form the RDSF,
   - feeding and metering the RDSF so obtained to a combustion plant.

2. Process according to Claim 1, wherein the thermoplastic polymer material mainly comprises a material obtained from the shredding of chlorine-free waste plastics materials.

3. Process according to Claim 2, wherein at least 90% of the weight of thermoplastic material has an average particle dimension not exceeding 25 mm.

4. Process according to any one of the preceding Claims, wherein the elastomeric polymer material mainly consists of a material obtained from the shredding of waste tyres after separation of the metal and/or textile reinforcing members.

5. Process according to Claim 4, wherein at least 90% by weight of the elastomeric material has an average particle dimension not exceeding 25 mm.

6. Process according to any one of the preceding Claims, wherein the dry fraction of the MSW is obtained from an unprocessed MSW by mechanical separation of putrescible organic fraction, separation of metal materials, shredding and possibly drying.

7. Process according to any one of Claims from 1 to 5, wherein the dry fraction of MSW is obtained by subjecting a raw MSW to a process of biostabilisation and subsequently a process of removing a fine fraction.

8. Process according to Claim 7, wherein the removed fine fraction has a dimension of less than 80 mm.

9. Process according to any one of the preceding Claims, wherein at least 90% by weight of the dry fraction of MSW has an average particle dimension not exceeding 25 mm.

10. Process according to any one of the preceding Claims, wherein the dry fraction of MSW has a moisture content not exceeding 15% by weight.

11. Process according to Claim 10, wherein the dry fraction of MSW has a moisture content not exceeding 10% by weight.

12. Process according to any one of the preceding Claims, wherein the produced RDSF is subjected to a stage of compaction, transported to the combustion plant and then subjected to a

disaggregation stage before the stage of feeding it to the combustion plant.

13. Process according to Claim 12, wherein the compacting stage is carried out so as to obtain a compacted RDSF with a bulk density ranging from 0.50 to 0.95 g/cm^3.

14. Process according to Claim 13, wherein the compacting stage is carried out in such a way so as to obtain a compacted RDSF with a bulk density of from 0.60 to 0.90 g/cm^3.

15. Process according to any one of the preceding Claims, wherein the stage of metering and feeding the said first component and the said at least one second component onto a continuous conveyor takes place separately, each through at least one metering screw and subsequently a weighing system.

16. Process according to Claim 15, wherein the said at least one metering screw has an advancing rate regulated in relation to the quantity of each component weighed by the corresponding weighing system.

17. Process according to any one of the preceding Claims, wherein the continuous conveyor collects the various components in the form of successive overlapping layers having a bulk density which increases from the bottom towards the top.

18. Process according to Claim 17, wherein a lower layer consisting of the thermoplastic material, an intermediate layer consisting of the dry fraction of the MSW, and an upper layer consisiting of the elastomeric material is formed on the continuous conveyor belt.

19. Process according to any one of the preceding claims, wherein the obtained RDSF has the following composition:
40-90% by weight of the dry fraction of the RDSF,
10-60% by weight of at least one polymer material selected from elastomeric material and thermoplastic material, or mixtures thereof.

20. Process according to Claim 19, wherein the obtained RDSF has the following composition:
60-80% by weight of the dry fraction of MSW,
20-40% by weight of at least one polymer material selected from elastomeric material and thermoplastic material, or mixtures thereof.

21. Process according to Claim 19 or 20, wherein the obtained RDSF has the following composition:
40-90% by weight of dry fraction of RDSF,
5-55% by weight of at least one elastomeric polymer material,
5-55% by weight of at least one thermoplastic polymer material.

22. Process according to Claim 21, wherein the obtained RDSF has the following composition:
60-80% by weight of the dry fraction of the MSW,
10-30% by weight of at least one elastomeric polymer material,
10-30% by weight of at least one thermoplastic polymer material.

23. Process according to any one of the preceding claims, wherein the obtained RDSF has a bulk density of less than 0.60 g/cm^3.

24. Process according to Claim 23, wherein the RDSF obtained has a bulk density of from 0.35 to 0.12 g/cm^3.

25. Plant for producing a refuse derived solid fuel, comprising:
at least one storage container for a first component consisting of a dry fraction of solid urban waste (MSW) in a shredded form,
at least one metering and feeding device for the said first component,
at least one storage container for at least one second component in a shredded form selected from an elastomeric material and a thermoplastic material,
at least one metering and feeding device for the said at least one second component,
at least one continuous conveyor onto which the said components are fed separately by the said feeding and metering devices so as to form overlapping layers of the said components,
at least one temporary accumulation container into which the said components are discharged by the said at least one continuous conveyor.

26. Plant according to Claim 25, also comprising at least one storage container for at least one third component in a shredded form also selected from an elastomeric material and a thermoplastic material, different from the second component,
at least one metering and feeding device for the said at least one third component.

27. Plant according to either of Claims 25 and 26, wherein the said metering and feeding devices comprise at least one metering screw and a weighing system.

28. Plant according to Claim 27, wherein the said at least one metering screw has a advancing rate which is regulated in relation to the quantity of each component weighed by the corresponding weighing system.

29. Plant according to any one of Claims 25 to 28, also comprising a device for compaction of the obtained RDSF.